

[4832/USSN 09/584,489]
[Group Art Unit 1773]

A4
concord
SUB
B1

-- 23. (New) A sheet or web material according to claim 3 wherein said material is a soft or semi-soft magnetic element.

-- 24. (New) A sheet or web material according to claim 3 wherein said material is subjected to oxidative treatment to provide a metal oxide-based conductive element. --

R E M A R K S

Applicants have carefully considered the outstanding official action and respectfully request reconsideration. The issues raised in the official action will be treated substantially in the order of their occurrence.

A certified copy of European Patent Application No. 99201895.2 filed June 10, 1999 is being submitted herewith. Applicants claim priority of the application under the provisions of 35 U.S.C. §119, more explicitly set forth at 37 C.F.R. §1.55.

Restriction is required under 35 U.S.C. §121 as between:

Group I - claims 1-2, drawn to an aqueous composition;

Group II - claims 3-9, 11-12 and 14, drawn to a sheet or web material; and

Group III - claims 16-19, drawn to a process of preparing an aqueous coating composition. Claims 10, 13 and 15 are stated to be drawn to non-statutory subject matter and are thus not included in the restriction.

Applicants confirm the earlier election of the claims of Group II, i.e., claims 3-9, 11-12 and 14. As set forth below, claims 10, 13 and 15 have been rewritten as new claims 22-24 respectively and are submitted to also be properly considered with regard to the elected claims of Group II. New claims 22-24 are dependent on claim 3 and further define the invention thereof. As to non-elected claims, applicants reserve the right to file divisional application(s) with respect thereto.

It is noted that claim 3 has been amended to be placed in independent form, i.e., has incorporated the limitations of base claim 1. Additionally, claim 2 has been rewritten as new claim 20 dependent on claim 3. Claim 9 has been amended in view of a lack of antecedent basis in claim 3 for "said protective layer or layer pack" and new claim 21 dependent on claim 6 has been added with respect to that claimed subject matter. No new matter has been added.

At page 4, claim 12 is objected to because of an informality. The informality noted by the Examiner has been corrected.

At page 5, claims 10, 13, and 15 are rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter.

Claims 10, 13 and 15 have been canceled and rewritten as new claims 22-24. No new matter has been added. The claims have been rewritten to provide limitations further defining the sheet or web material of claim 3. Thus, the claims do not merely recite use. Withdrawal of the §101 rejection is requested.

At page 5, claims 3-8 and 14 are rejected under 35 U.S.C. §103(a) as being unpatentable over EP 0 875 889 A1 (Daems) in view of JP 58-089397 A (Ricoh). This rejection is respectfully traversed.

Daems teaches a heat mode recording element including a transparent support and a thin metal layer wherein the metal layer is formed by preparing an aqueous solution containing metal ions, and reducing the ions to metal particles by means of a reducing agent. To maintain the metal particles in dispersion, a protective binder can be used such as a carboxymethylcellulose, gelatin, arabic gum, polyacrylic acid, cellulose derivatives and other polysaccharides.

Ricoh teaches insolubilizing a heat-sensitive recording sheet in water using a diisobutylene-maleic

anhydride copolymer, or water-soluble salt thereof, with methylcellulose or carboxymethylcellulose.

Accordingly, applicants submit that neither Daems nor Ricoh teach a N-quaternized cellulose as claimed. Further, neither Daems nor Ricoh suggest such N-quaternized cellulose. Cellulose is a sugar polymer built up by C, H and O atoms. A N-quaternized cellulose is a cellulose compound containing in its molecular structure repeating quaternized nitrogen groups that are nitrogen atoms having a positive charge and four chemical bonds. In the case of the binders disclosed in Ricoh, methyl cellulose (MC) contains no quaternized nitrogen, carboxymethylcellulose (CMC) contains no quaternized nitrogen and the addition to either of MC or CMC with the salt of diisobutylene maleic anhydride copolymer as taught in Ricoh does not produce a N-quaternized cellulose. Therefore, it would not have been obvious to one of ordinary skill in the art to combine the teaching of Daems and Ricoh to arrive at applicants' claimed invention in which a N-quaternized cellulose binder is present in a metal layer. The combination of the heat mode recording material in Daems and binders in Ricoh does not lead to the claimed invention without the use of impermissible hindsight. It is respectfully requested that the §103 rejection based on Daems and Ricoh be withdrawn.

At page 6, claims 3-9 and 14 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,187,508 B1 (Andriessen et al) in view of Ricoh. This rejection is respectfully traversed.

Andriessen et al teach a heat mode recording element including a transparent substrate, a thin metal layer and a protective layer or pack. Protective binders which may be used to keep the metal particles in solution include carboxymethylcellulose, polyacrylic acid, cellulose derivatives and gelatin. The heat mode recording element taught also contains hypophosphorous acid and/or phosphorous acid. The teachings of Ricoh are as set forth above. Accordingly, Andriessen et al does not provide any relevant teaching beyond the teaching of Daems. Thus, the combination of Andriessen et al and Ricoh does not teach or suggest the claimed invention on the same grounds as set forth above with respect to Daems and Ricoh. Neither Andriessen et al nor Ricoh teach or suggest a N-quaternized cellulose as claimed. Methylcellulose contains no quaternized nitrogen. Carboxymethylcellulose contains no quaternized nitrogen. The addition to either of methylcellulose or carboxymethylcellulose of a salt of diisobutylene maleic anhydride copolymer does not produce N-quaternized cellulose. Accordingly, it is respectfully submitted that it would not have been obvious to one of

ordinary skill in the art to use binders as disclosed in Ricoh in the heat mode recording element of Andriessen et al to arrive at applicants' claimed invention including a N-quaternized cellulose as a binder. It is respectfully requested that the §103 rejection based on Andriessen et al and Ricoh be withdrawn.

At page 7 claims 11 and 12 are rejected under 35 U.S.C. §103(a) as being unpatentable over Andriessen et al or Daems in view of Ricoh as applied above, and further in view of U.S. Patent No. 4,405,706 (Takahashi et al). Applicants respectfully traverse this rejection.

Applicants reassert their comments with respect to Daems, Andriessen et al and Ricoh as set forth above. Further, Takahashi et al does not make up for the shortcomings of the primary references. Takahashi et al is relied on for teaching the limitations of dependent claims 11 and 12. Takahashi et al provides no teaching or suggestion with regard to N-quaternized cellulose. Takahashi et al is relied on for teaching the inclusion of nickel and its alloys in a heat mode recording medium. Nickel and its alloys have been known as useful in metal layers in heat mode recording materials where metal layers are obtained using traditional methods such as evaporation deposition, sputtering, etc. However, nickel and its alloys are not taught or suggested for use in metal layers

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including N-quaternized cellulose as a binder. Therefore, it is respectfully submitted that it would not have been obvious to one of ordinary skill in the art to use nickel or its alloys in an aqueous composition as claimed including N-quaternized cellulose as a binder. It is respectfully requested that the §103 rejection of claims 11-12 be withdrawn.

Reconsideration and allowance of the application are respectfully urged.

Respectfully submitted,

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Attachments - Priority Document
- Marked-Up Version of Claims

MARKED-UP VERSION OF CLAIMS

3. (Amended) A sheet or web material comprising a support and a metal layer coated from an aqueous composition [as defined in claim 1] comprising a dispersion of metal or metal alloy particles, prepared by chemical reduction of metal ions in aqueous medium, wherein (1) said dispersion has a concentration of at least 20 g of particles per liter, (2) said particles show an average size between 5 and 200 nm, and (3) said aqueous composition further includes a N-quaternized cellulose as binder.

9. (Amended) A sheet or web material according to claim 3 wherein said metal layer [and/or said protective layer or layer pack] further [contains] comprises hypophosphorous acid, or phosphorous acid, or a mixture of both.

12. (Amended) A sheet or web material according to claim 11 wherein said metal particles further comprise iron particles, cobalt particles or [molybdene] molybdenum particles or [mixtures of them] mixture thereof.